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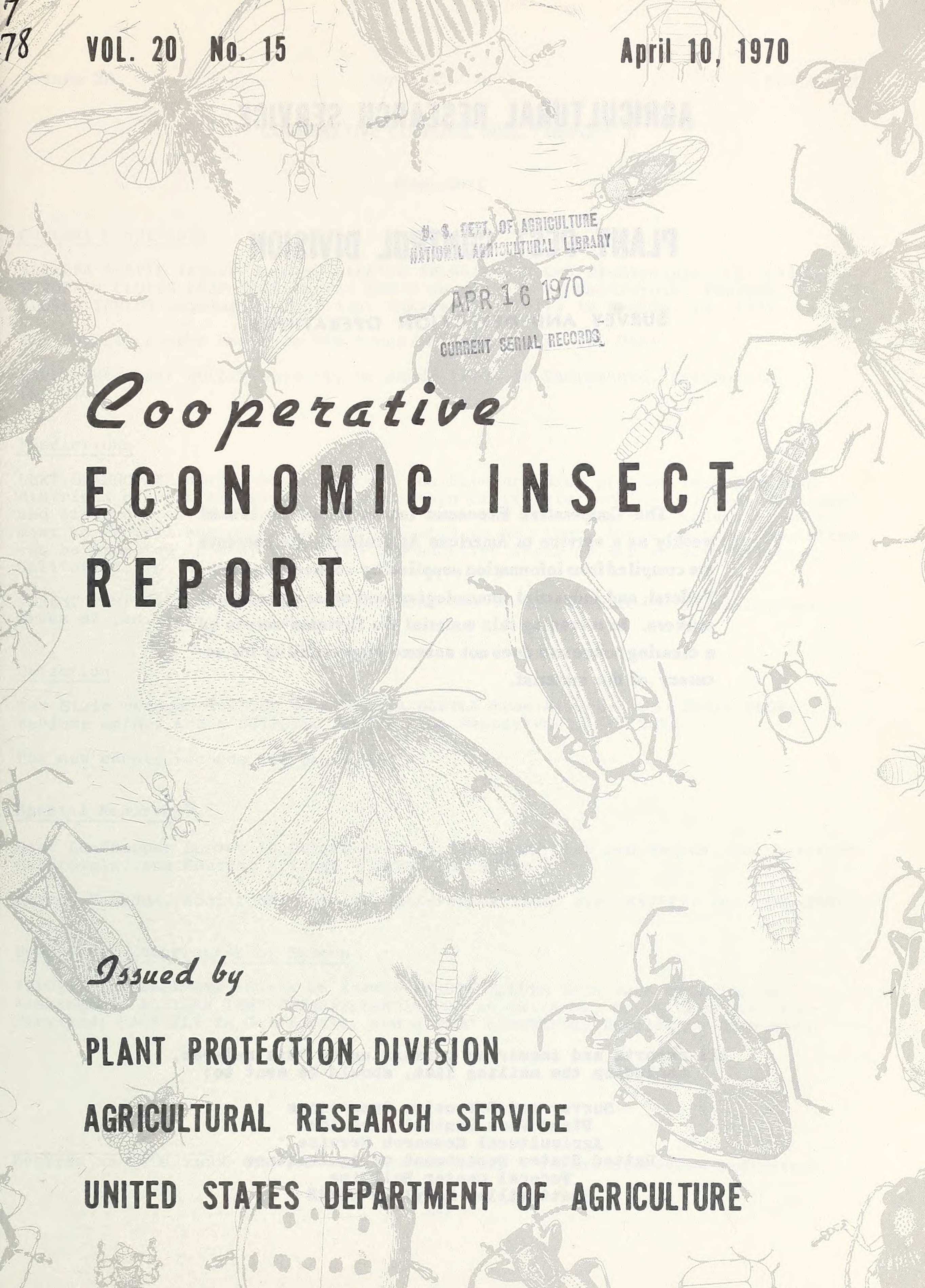

Cooperative
ECONOMIC INSECT REPORT

Issued by

PLANT PROTECTION DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 20 April 10, 1970 Number 15

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ALFALFA WEEVIL larvae damaged alfalfa in Oklahoma and Mississippi. (p. 234). EUROPEAN CLOVER LEAF TIER larvae heavy on clovers in California. WESTERN FLOWER THRIPS causing bud and leaf damage on alfalfa in Nevada. (p. 235).

FIG PSYLLID nymphs heavy on fig trees in California. (p. 235).

FRUIT-TREE LEAF ROLLER epidemic on shade trees in Sacramento, California. (p. 236).

Predictions

BEET LEAFHOPPER spring movement from southern breeding grounds to cultivated districts of central Arizona, southeastern California, southern Nevada, southern and eastern Utah, and western Colorado expected to be light to moderate; movement to central and northern Utah expected to be light. Above average population can be expected in many west side reproductive areas of San Joaquin Valley, California. (p. 233).

FOREST TENT CATERPILLAR defoliation expected to be moderate to heavy in some areas of Louisiana. (p. 236).

Detection

New State records include an AMBROSIA BEETLE from Missouri (p. 236), BROWN Recluse spider and a SCYTODID SPIDER from Pennsylvania (p. 237).

For new county records see page 237.

Special Reports

Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southeastern California, and Central Arizona - 1970. (p. 233).

Survey Methods. Additional Selected References 1966. Part XXVIII. (pp. 239-242).

Some First Occurrences of Season

IMPORTED CABBAGEWORM adults in Idaho; SPRUCE SPIDER MITE eggs hatching in Washington; EASTERN TENT CATERPILLAR larvae in Oklahoma, South Carolina, and Maryland; FACE FLY in California; and SPRING CANKERWORM females in Minnesota.

Reports in this issue are for week ending April 3 unless otherwise indicated.

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WEATHER BUREAU'S 30-DAY OUTLOOK

APRIL 1970

The Weather Bureau's 30-day outlook for April is for temperatures to average near to above normal in the Gulf and South Atlantic Coast States and near normal elsewhere along the eastern seaboard. Over the remainder of the Nation below normal temperatures are in prospect. Precipitation is expected to exceed normal over the northern Plains as well as the middle Mississippi Valley, the Ohio Valley, and Tennessee. Subnormal totals are indicated for the Pacific Northwest, western portions of the southern Plains and most of Florida. In unspecified areas near normal precipitation is expected.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price $5.00 a year.

WEATHER OF THE WEEK ENDING APRIL 6

HIGHLIGHTS: Temperatures in the East continued much below normal except at midweek when they climbed to near seasonal. The West remained cool until a fast weekend warming trend brought maximums to near normal. Heavy snow, flood-producing rains, and damaging winds accompanied a deep storm in the Northeast.

PRECIPITATION: As the storm that dumped 5 to 12 inches or more of snow in the Northeast on Easter Sunday moved eastward off the Atlantic coast, a new, more powerful storm was developing in the West. It produced 1 to several inches of snow to parts of Wyoming (7 inches at Douglas), Colorado, Nebraska, and Kansas, and heavier snow to parts of Arizona (14 inches at Flagstaff) and New Mexico. A storm centered in the Deep South on Tuesday caused a mixture of snow, sleet, and freezing rain to the Northeast, principally to Pennsylvania, New York, New Jersey, and Connecticut, and rain and drizzle from the middle Atlantic States to Georgia and Alabama. By noon Tuesday, a snowstorm was in progress from New England to the Middle Atlantic States and rain fell south of the snow belt. Shortly before midweek, a storm brought snow from the adjoining Great Plains to the upper Mississippi River Valley with freezing rain and thundershowers, some with hail and strong wind, south and east of the snow belt. March ended with new snowfall and rainfall records set at a number of locations. Chicago, Illinois, received 74.5 inches of snow since last fall. This is more snow than fell in any previous season and more than twice the median amount. Flagstaff, Arizona, received 67.3 inches of snow in March setting a new record for the month. Jacksonville, Florida, set a new March rainfall record with 9.98-inch total. Numerous severe thunder-

Weather of the week continued on page 238.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southeastern California, and Central Arizona - 1970

Surveys were conducted for beet leafhopper (*Circulifer tenellus*) during the period February 3-15, 1970. If present conditions prevail, spring movement from the southern breeding grounds to cultivated districts of central Arizona, southeastern California, southern Nevada, southern and eastern Utah, and western Colorado is expected to be light to moderate; movement to central and northern Utah is expected to be light.

In general, annual weed host-plant areas were small and intermittent throughout the region surveyed. Some rains occurred during the second week of survey, which may be sufficient to sustain host plants or germinate additional host plants in some locations.

The average number of beet leafhoppers per square foot where annual hosts were present was 0.077 in 1970 as compared to 0.028 in 1969, 0.034 in 1968, 0.09 in 1967, 0.013 in 1966, 0.04 in 1965, and 0.015 in 1964. It is estimated from data collected during the survey that overwintering beet leafhoppers in the spring breeding areas totaled 11.3 billion in 1970 as compared to 14.0 billion in 1969, 24.1 billion in 1968, 32.8 billion in 1967, 6.5 billion in 1966, 12.0 billion in 1965, and 112.0 billion in 1964.

This report covers only the beet leafhopper situation as found in the area surveyed and does not have reference to populations that may have overwintered in local areas in northern and eastern Utah or western Colorado or western Nevada.

The second beet leafhopper survey was made in the desert spring breeding areas of southeastern California, central Arizona, southern Nevada, and southern Utah during the period March 4-16, 1970. Populations remained about the same as indicated by earlier surveys, with movement of beet leafhoppers to the northern cultivated host crop area expected to be light to moderate.

Due to recent rains in the desert areas of Arizona, native host plants were in good condition and a slight buildup of beet leafhopper populations was evident. In all other areas surveyed, host plants were less abundant and unfavorable for population buildup. (PPD West. Reg.).

BEET LEAFHOPPER (*Circulifer tenellus*) - CALIFORNIA - Population checks made in Kern, Kings, and Fresno Counties indicate spring hatch continuing. Ranged 30-40 per 10 sweeps in South Belridge area of Kern County. Above average population can be expected in many west side reproductive areas of San Joaquin Valley. (Cal. Coop. Rpt.).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - COLORADO - Larval activity declined in northeast area due to cold weather. (Johnson).

CORN LEAF APHID (*Rhopalosiphum maidis*) - ALABAMA - Few nymphs observed in whorls of Johnson grass shoots in Lee County. (McQueen).

GREENBUG (*Schizaphis graminum*) - NEW MEXICO - Light, ranged 1-10 per linear foot in barley in Chaves County. (Mathews). COLORADO - Surveys negative in northeastern area wheat. (Johnson). KANSAS - Surveys negative on wheat in 2 east-central and 4 southeast counties. (Redding). OKLAHOMA - Populations in small grains in southwest and west-central areas declined past 14 days. Primarily due to parasitism by a braconid (*Lysiphlebus testaceipes*). *S. graminum* ranged up to 10 per linear foot in wheat in Bryan, Marshall, and Love Counties. (Okla. Coop. Sur.). ARKANSAS - Survey negative in Washington County. (Boyer). VIRGINIA - Hatching on reed canary grass in Montgomery County. (Allen, Mar. 26).

POTATO PSYLLID (Paratrioza cockerelli) - NEVADA - Adults medium on Lycium torreyi in Moapa Valley, Clark County. (Zoller).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NORTH DAKOTA - Single specimen collected July 2, 1969, from barley adjacent to alfalfa in Cass County by S.D. Hintz. This is a new county record. (Brandvik). ARKANSAS - Survey negative in Washington County. (Boyer). ARIZONA - Averaged 140 per 100 sweeps of alfalfa in Gila Valley, Yuma County. (Ariz. Coop. Sur.).

SMALL GRAINS

STINK BUGS - FLORIDA - Adult counts per 100 sweeps of rye at Gainesville, Alachua County as follows: Euschistus ictericus 6, E. servus (brown stink bug) 16, Nezara viridula (southern green stink bug) 14, and Oebalus pugnax (rice stink bug) 3. (Mead).

A LYGAEID BUG (Paromius longulus) - FLORIDA - Adults 18 per 100 sweeps of rye at Gainesville, Alachua County. (Mead).

PALE WESTERN CUTWORM (Agrotis orthogonia) - COLORADO - Larval activity on small grain declined in northeast area due to cold weather. (Johnson).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Light, ranged 5-10 in 100 sweeps of small grain in Washington County. (Boyer).

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Ranged 5-25 per linear foot in wheat in Love, Marshall, and Bryan Counties. Light in southwest and west-central areas. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

AN ARMORED SCALE (Odonaspis ruthae) - NEVADA - Heavy on Bermuda grass in several lawns in Las Vegas, Clark County. (Zoller).

MOLE CRICKETS (Scapteriscus spp.) - FLORIDA - Problem in central areas on Bahia grass lawns and on Bahia grass shoulder areas of turnpike in southern area. (J.L. Taylor, J.B. Taylor).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Late-instar damage noticeable to alfalfa in scattered areas of Bryan County, especially in Calera area. Controls planned. Damaging in Grant area of Choctaw County. (Okla. Coop. Sur.). ARKANSAS - Survey negative in Washington County. (Boyer). MISSISSIPPI - Larvae averaged 81 per 20 stems of alfalfa in Pontotoc County; damage heavier than usual for this time of year. Controls recommended. (Pitre). FLORIDA - Larvae 33 in 100 sweeps of blooming alfalfa at Gainesville, Alachua County. (Mead). SOUTH CAROLINA - Numerous in all alfalfa; numerous adults unusual for time of year. (Thomas). INDIANA - First instars in 1 of 5 sampled alfalfa fields in Jackson County; egg counts heavy in 2 previous samplings. (Myer).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Averages per 100 sweeps of alfalfa in Yuma County as follows: Yuma Valley 25 larvae, Gila Valley 10 adults and 25 larvae, Yuma Mesa 20 adults and 35 larvae. Controls applied at Somerton. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - INDIANA - Early instars ranged 1-17 per square foot in 5 alfalfa fields in Jackson County. (Myer). NEW MEXICO - Ranged up to 3 per square foot in Dexter and Hagerman area of Chaves County. Starting to pupate; no noticeable damage. (Mathews).

PEA APHID (Acyrthosiphon pisum) - NEVADA - Averaged 75 per sweep in Moapa Valley, Clark County, alfalfa. Parasites and predators light. (Zoller). ARIZONA - Heavy, counts of 1,600 per 100 sweeps of alfalfa in Gila and Yuma Valleys, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Generally light in alfalfa in Dona Ana County. (N.M. Coop. Rpt.). Ranged 10-30 per square foot on alfalfa in Eddy and Chaves Counties. (Mathews). OKLAHOMA - Increasing in scattered areas in southwest and west-central counties. Ranged 120-700 per square foot in Ellis County. Light in Garvin County. (Okla. Coop. Sur.). ARKANSAS - Light, ranged 5-10 in 100 sweeps of alfalfa and clovers in Washington County. Development later than normal. (Boyer).

EUROPEAN CLOVER LEAF TIER (Mirificarma formosella) - CALIFORNIA - Larvae heavy on clovers in pastures at Lincoln, Placer County. Hay pastures recently cut now heavily webbed and tied. Controls planned. Early occurrence result of mild weather. (Cal. Coop. Rpt.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae averaged 110 per 100 sweeps in field of alfalfa at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - ARIZONA - Averaged 35 per 100 sweeps of alfalfa in Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - NEVADA - Heavy, causing bud and leaf damage on alfalfa in Moapa Valley, Clark County. Older leaves deformed and whitened. (Zoller).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Heavy and spotted on alfalfa in Moapa Valley, Clark County. (Zoller).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Heavy on bedding plants of chilli pepper, tomato, and snapdragon in commercial greenhouses in Bernalillo, Valencia, and McKinley Counties. (Heninger).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - IDAHO - First adult of season March 16 at Notus, Canyon County. (Homan).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First nymphs of first generation observed at Toppenish March 31; about 1 percent of eggs hatched. Adult counts up to 1,452 per 25 trays, and 351 eggs on 15 spurs in untreated pear orchards in upper Yakima Valley, Yakima County, March 24. (Johnson, Gregorich).

ROSY APPLE APHID (Dysaphis plantaginea) - DELAWARE - Eggs abundant on many apple trees in Kent and Sussex Counties. (Boys).

EUROPEAN RED MITE (Panonychus ulmi) - DELAWARE - Eggs not as numerous on apple trees as in past years. (Boys).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Few overwintered small larvae in cases in 2 pecan orchards in Lee County. First feeding observed. (McQueen).

CITRUS

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Controls applied in citrus nurseries and seed beds at Yuma, Yuma County. (Ariz. Coop. Sur.).

OTHER TROP. & SUBTROP. FRUITS

FIG PSYLLID (Homotoma ficus) - CALIFORNIA - Heavy, second and few third stage nymphs on fig trees at Concord, Contra Costa County. (Cal. Coop. Rpt.).

SMALL FRUITS

GRAPE ROOT BORER (Vitacea polistiformis) - SOUTH CAROLINA - Damage severe in vineyards at Great Falls, Chester County. (Thomas).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - Infestations declined below levels of recent years on private and National Forest lands in southeast TEXAS. Activity declined to endemic levels on Talladega National Forest in ALABAMA. First observations indicate overwintering brood reduced by cold weather in NORTH CAROLINA and TENNESSEE. (South. For. Pest Rptr., Mar.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - WASHINGTON - Eggs hatching at Tumwater, Thurston County, March 25. (Barstow).

FOREST TENT CATERPILLAR (Malacosoma disstria) - LOUISIANA - Egg mass surveys in 1969 along Mermentau River and in Morgan City area of St. Mary Parish indicate moderate to heavy defoliation can be expected in 1970. (La. For. Comm.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - First larvae of season on wild plum in Bryan, Marshall, and Love Counties. (Okla. Coop. Sur.). SOUTH CAROLINA - First observed March 17 on cherry and apple trees at Clemson, Oconee County. (Skelton). MARYLAND - First larvae of season on wild cherry at Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

BALSAM WOOLLY APHID (Adelges piceae) - NORTH CAROLINA - New infestation found in remote area of Balsam Mountains represents southernmost extension in southern Appalachians. (South. For. Pest Rptr., Mar.).

AN AMBROSIA BEETLE (Xyleborus ferrugineus) - MISSOURI - Specimen collected from buttress roots of Quercus velutina (black oak) at Salem, Dent County, by W.H. Kearby October 24, 1969. Determination by D.M. Anderson. This is a new State record. (Kearby).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CALIFORNIA - Epidemic infestations in many areas in and around Sacramento, Sacramento County. Oak and other shade trees stripped of new growth. Ornamental shrubs and some garden plants severely damaged and killed when growing under infested trees. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - MINNESOTA - Female moths observed moving up trees at St. Paul, Ramsey County. (Minn. Pest Rpt.).

MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. March 29 to April 4. Total of 20 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico March 22-28 as follows: Baja California 3, Sonora 9, Chihuahua 8. Total of 5 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 6,528,000; Mexico 175,330,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - SOUTH DAKOTA - Total of 440 calves examined; 70 percent infested from White River area, Mellette County; 80 percent infested on Cheyenne River Indian Reservation in Dewey and Ziebach Counties. Averaged 18.8 and 10.1 larvae per calf, respectively. (Jones, Mar. 20). TENNESSEE - H. lineatum (common cattle grub) infested 9 of 21 head of cattle in Giles County. (Edwards, Parker).

FACE FLY (Musca autumnalis) - CALIFORNIA - Heavy emergence at Redding and Anderson, Shasta County. Annoying to homeowners. Males predominant on outsides of buildings; females prevalent on livestock. (Cal. Coop. Rpt.).

HOG LOUSE (*Haematopinus suis*) - OKLAHOMA - Moderate on hogs in Mayes County. (Okla. Coop. Sur.).

BROWN RECLUSE SPIDER (*Loxosceles reclusa*) - PENNSYLVANIA - Female collected in machine shop at Mechanicsburg, Cumberland County, January 15, 1970. Determined by S.G. Green. This is a new State record. (Green).

A SCYTODID SPIDER (*Loxosceles rufescens*) - PENNSYLVANIA - Male collected in building at Wilkes-Barre, Luzerne County, September 26, 1969. This is a new State record. Established population discovered in several buildings at University Park, Centre County, March 4-11. About 20 specimens collected. Source of infestation unknown. This is a new county record. Determinations made by S.G. Green. (Green).

HOUSEHOLDS AND STRUCTURES

A LONG-HORNED BEETLE (*Xylotrechus annosus emotus*) - NEVADA - Many adults emerging from firewood in home at Carson City, Ormsby County. Collected by W. Maddaford April 2. Determined by R.C. Bechtel. This is a new county record. (Bechtel).

BROWN SPIDER BEETLE (*Ptinus clavipes*) - IOWA - Specimens collected at State Center, Marshall County, and at Garner, Hancock County. These are new county records. (Iowa Ins. Sur.).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (*Hippodamia convergens*) - ARKANSAS - Adults ranged 5-6 in 100 sweeps in small grain and alfalfa in Washington County. (Boyer).

A PHYTOSEIID MITE (*Zetzellia mali*) - WASHINGTON - This predaceous species abundant on prune twigs and apple spurs in mid-March in Yakima County. (Gregorich, Anthon).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (*Oulema melanopus*) - TENNESSEE - Surveys negative in Fayette, Henry, Madison, Tipton, and Weakley Counties. (Gordon).

GRASSHOPPERS - OKLAHOMA - Averaged 0.25 viable egg pod per square foot of sod in rangeland areas in 4 northwest counties. (Okla. Coop. Sur.).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - ALABAMA - Mound building observed in pastures and fields in Talladega County. Winged forms in flight. (O'Daniel et al.). TENNESSEE - Surveys negative in Bedford, Coffee, Fayette, Giles, Hamilton, Maury, Meigs, Tipton, and Wayne Counties. (Gordon).

DETECTION

New State Records - AN AMBROSIA BEETLE (*Xyleborus ferrugineus*) MISSOURI - Dent County. (p. 236). BROWN RECLUSE SPIDER (*Loxosceles reclusa*) PENNSYLVANIA - Cumberland County. (p. 237). A SCYTODID SPIDER (*Loxosceles rufescens*) PENNSYLVANIA - Luzerne County. (p. 237).

New County Records - BROWN SPIDER BEETLE (*Ptinus clavipes*) IOWA - Marshall, Hancock (p. 237). A LONG-HORNED BEETLE (*Xylotrechus annosus emotus*) NEVADA - Ormsby (p. 237). A SCYTODID SPIDER (*Loxosceles rufescens*) PENNSYLVANIA - Centre (p. 237). SPOTTED ALFALFA APHID (*Therioaphis maculata*) NORTH DAKOTA - Cass (p. 234).

HAWAII INSECT REPORT

Pastures - A GRASS WEBWORM (Herpetogramma licarsisalis) remains light in pastures on Maui, Kauai, and Oahu. Few adults noted during pasture survey at Hana, Maui; no eggs or larvae found. (Miyahira et al.).

Fruits - Clusters of adults (10-15) of a PLATASPID BUG (Coptosoma xanthogramma) noted on terminals of young citrus plants at Hilo, Hawaii. (Yoshioka).

Ornamentals - HEMISPHERICAL SCALE (Saissetia coffeae) heavy, as many as 20 per leaflet, on ornamental cycads at Hilo, Hawaii. Parasitism by a PTEROMALID WASP (Scutellista cyanea) moderate. (Yoshioka).

Beneficial Insects - Adults of a TEPHRITID FLY (Tetraeuaresta obscuriventris) heavy on flowers of elephants-foot (Elephantopus mollis) and other weeds and shrubs at Kukuiolono golf course and in pastures at Kalaheo, Kauai. (Sugawa). Recoveries of BRACONIDS (Opius spp.) made for first time on island of Hawaii from material collected at Papaikou. Initial release of these parasites of Melanagromyza phaseoli (bean fly) on island made in July 1969. (Yoshioka).

General Pests - Larvae and adults of KOA HAOLE LOOPER (Anacamptodes fragilaria) heavy on koa haole (Leucaena glauca) in 200 acres of ranch land at Poipu, Kauai; caused severe defoliation in some areas. (Sugawa). Loud stridulations of a LONGHORN GRASSHOPPER (Euconocephalus nasutus) at night continue to annoy residents in various areas on Oahu. Populations appear heaviest in Waipahu area. (Funasaki). CROTON CATERPILLAR (Achaea janata) larvae heavy on castorbean throughout Molokai. (Fujimoto).

Weather of the week continued from page 232.

storms and a few tornadoes occurred over the South about midweek as more heavy snow fell in the North. Lansing, Michigan, received 16 inches of snow Wednesday afternoon and Thursday and 11 inches at Midway Airport set a new 24-hour snowfall for Chicago. Winds, gusting to 40 to 55 m.p.h., filled the air with snow, reducing the visibility, and drifting the snow badly. Transportation came to a standstill. This storm was especially deep. At midnight Thursday the pressure at the center had dropped to 971 mbs (28.67 inches). Buffalo, New York, registered 28.86 inches at noon Thursday the lowest pressure in April in 100 years of records. Washington, D.C., registered 28.99 inches, setting a new record-low sea-level pressure for the month of April. The previous low-record was 29.09 inches which occurred on April 13, 1961. The big storm pounded the Northeast all day Thursday with gusts ranging from 50 to 70 m.p.h. or higher as the snow and rain continued. At Grandfather Mountain in North Carolina, the gusts reached 115 m.p.h. The strong winds caused considerable roof and glass damage in the Trenton, New Jersey, vicinity. The storm moved northeastward into Canada's Maritime Provinces and clear to partly cloudy skies prevailed over most of the Nation on Saturday and Sunday with light rains occurring in the Far Northwest, the upper Mississippi River Valley, and the Florida Peninsula.

TEMPERATURE: Following the big Easter storm, record-breaking cold for so late in the season occurred in parts of the Northeast. Philipsburg, Pennsylvania, registered 1° below zero on Monday morning. In sharp contrast, mild weather continued in Florida where Orlando registered 92° on Tuesday and 91° on Wednesday. Most of the Southeast registered afternoon temperatures in the high 70's and 80's. The strong northerly winds brought cold temperatures over the East far southward. The temperature at Raleigh, North Carolina, dropped from 72° Thursday afternoon to 32° Friday morning. As the big storm moved into Canada, cool temperatures pushed southward. Asheville, North Carolina, registered 30° Saturday morning. A warming trend occurred in the Midwest. Mobridge, South Dakota, registered 60° Saturday in contrast to 41° the previous afternoon. Weekly temperatures averaged below normal over most of the Nation. Much of the area from northeastern New Mexico to Lower Michigan averaged 8° to 11° cooler than normal. Washington, the central valleys and the southern two-thirds of California's coast, and the Florida Peninsula averaged above normal. Miami, Florida, averaged 10° warmer than normal. (Summary supplied by Environmental Data Service, ESSA.)

SURVEY METHODS

Additional Selected References 1966

Part XXVIII

Additional copies of Parts I through XXVIII of this bibliography are available from Economic Insect Survey and Detection.

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